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THE ASSURANCE MAGAZINE.

The Practice and Experience of the CLERICAL, MEDICAL, AND GENERAL LIFE ASSURANCE SOCIETY, chiefly with reference to Invalid Lives. By GEORGE H. PINCKARD, Actuary of the said Society; Fellow of the Institute of Actuaries, and of the Statistical Society.

[Read before the Institute of Actuaries, 28th April, 1851.]

IN the year 1823 a plan was projected, by the late Dr. George Pinckard, for establishing an Assurance Office which should undertake, as its leading feature, to grant policies on lives deviating so much from the common standard of health as to render them wholly inadmissible at any Office then existing. In pursuance of this plan, the Clerical, Medical, and General Life Assurance Office was established early in 1824. In the absence of any trustworthy data which might serve as a guide, the projector considered that the object in view could be accomplished, with safety, only by the aid of more extended and diversified medical knowledge than was obtainable by Offices dependent on the unassisted judgment of one or two medical examiners. In forming the board of directors, therefore, he expressly provided, that of the 17 gentlemen of whom it was composed, 8 at least should be members of the medical profession.

In the selection of these 8 directors, special care was taken to secure men of eminence, distinguished by their attention to some particular class of diseases. Thus, one medical gentleman was selected who was considered particularly conversant with diseases of the lungs; another was chosen for his skill and experience in the ailments with which females are chiefly affected; and the rest, on similar grounds. By this arrangement, whatever might be the complaint with which any applicant had been afflicted, there was always on the board a medical director, peculiarly qualified by

previous study and practice to estimate the increased risk caused by the complaint in question.

The Society proceeded under this guidance for nearly 11 years, until the end of the year 1834. I then, for the first time, made the best investigation which the facts at my disposal would permit, into the mortality that had prevailed as regarded both the healthy and the unhealthy lives assured up to that date.

The result is shown in the following table:—

TABLE A.

CLERICAL &c. EXPERIENCE.				NORTH-AMPTON TABLE.
AGES.	All Lives combined.	Healthy Lives only.	Unhealthy Lives only.	
	One in	One in	One in	One in
20 to 29	96·	122·	30·	64·
30 „ 39	74·	80·	53·	54·
40 „ 49	49·	60·	31·	42·
50 „ 59	37·	41·	29·	30·
60 „ 69	23·	31·	14·	21·
20 to 69	56·	67·	31·	42·

It thus appears that the mortality on the unhealthy lives for the whole period from 20 to 69 has been more than double that on the healthy. At the same time, the average additional premium paid by the invalid class did not exceed 30 per cent. The above results, although derived from the small number of 650 unhealthy lives, were nevertheless considered to militate so strongly against the acceptance of unhealthy risks, that the directors were induced from this date to exercise much greater caution than heretofore in accepting unhealthy lives, and, as a necessary consequence, many persons who before would have been admitted were now rejected.

Although the board never abandoned the principle of admitting diseased lives, yet extreme caution continued to prevail up to June 1843, when a second investigation was made in the following manner:—

First, every invalid case was registered under the head of the particular disease on account of which an additional premium had been charged. Thus, all persons afflicted with disease of the liver were grouped under one head; those suffering from disease of the lungs, under another; and so on, until all were classified under 56 different heads of disease. By the aid of the medical directors,

these 56 distinct diseases were comprehended under 8 classes; each class consisting of diseases having an affinity for each other. There was also a 9th class, termed miscellaneous, embracing persons who had been charged an increased premium on account of their occupation, or on other grounds unconnected with any specific disease. These 9 classes were then formed into one, which exhibited in a synoptical view 1297 invalid lives, being all who had been assured at an additional premium (exclusive of those charged for foreign climates), from the foundation of the Society up to the year 1843.

This being completed, a comparison was then made as to the per-centage of loss by deaths, on the whole premiums received both from the healthy and the unhealthy policies. My next step was to ascertain the rate of mortality which had occurred during the 18½ years from June 1824 to January 1843, on the diseased cases taken by themselves.

This is shown by the following table :—

TABLE B.

AGES.	Clerical &c. Mortality.	Northampton Table.
	One in	One in
20 to 29	69.	64.
30 „ 39	79.	54.
40 „ 49	53.	42.
50 „ 59	37.	30.
60 „ 69	19.7	21.
20 to 69	52.	42.

By comparing the above table with the one before given (Table A.), it will be seen that the increased care exercised, during the 9 years from 1834 to 1843, produced a very beneficial effect; the deaths on the unhealthy lives between the ages of 20 and 69 having been in the proportion of 1 in 31 in the former table, against 1 in 52 in the latter table.

The result of this second investigation having proved favourable, a system has been in operation, during the 6 years from June 1843 to June 1849, by which invalid lives have been accepted rather more freely than before. But in deciding on the acceptance or rejection of proposals on such lives, the directors have not been guided by medical science alone, but have availed themselves further of the light thrown on such risks by facts and experience acquired in the previous 19 years.

With a view of ascertaining the effect of this last-mentioned system, and also of the extended experience on the invalid branch of the Society's business, I have made a third investigation, similar to that already described as made in 1843. All persons on whose lives an increased premium had been charged, have now been arranged under 79 heads; viz., 65 of different diseases, and 14 heads of miscellaneous. These have been grouped into 9 classes as before, and the whole again comprehended in one synopsis; thus exhibiting the experience of the Society for a period of 25 years, from June 1824 to June 1849.

With respect then to the last 6 years, during which the system alluded to has been in operation, I have only to state, that 826 policies on invalid lives have been issued; and that the claims by deaths have amounted in that period to 24·9 per cent., or, in round numbers, to one quarter of the whole premiums received. Whether this loss is greater or less than has been sustained by those Offices which have been transacting this kind of business for the same period of time, I have no means of ascertaining; but, in my judgment, the result is not otherwise than satisfactory.

Having thus disposed of the experience of the last 6 years, I will proceed to show the mortality for the 24½ years, from June 1824 to January 1849, on the diseased lives taken by themselves.

The plan for obtaining this rate of mortality is similar to that adopted by Mr. Arthur Morgan, in his valuable and interesting work published in 1834.

The following table will exhibit the mortality above alluded to, the numbers in each column being arranged in decimal periods:—

TABLE C.
DISEASED LIVES.

AGES.	Totals of the number who attained to each Age.	Living, January 1, 1849.	Discontinued.	Died.	This investigation relates entirely to Diseased Lives, and only one Policy is entered on the same Life.—Those charged extra for Climate, &c. are excluded.
2 to 10	25	4	1	—	
10 „ 20	107	14	7	2	
20 „ 30	749	70	79	17	
30 „ 40	2,550	191	136	33	
40 „ 50	3,464	260	131	63	
50 „ 60	2,489	251	92	67	
60 „ 70	1,421	108	36	77	
70 „ 80	498	49	4	45	
80 „ 88	48	7	1	4	
Total . . .	11,351	954	487	308	

From the preceding, the following table has been formed :—

TABLE D.

AGES.	Clerical, Medical, and General.	Northampton.	Carlisle.
	One in	One in	One in
20 to 29	41·8	64·	131·6
30 „ 39	75·2	54·	95·
40 „ 49	54·	42·	70·3
50 „ 59	36·5	30·	54·3
60 „ 69	18·2	21·	24·8
70 „ 79	11·	11·	12·1
20 to 79	39·5	37·	64·7

By this last table it will be seen, that in taking all the ages from 20 to 79, the mortality has kept rather below the Northampton Table,—a fact of considerable importance, when it is stated that the average premium received, during the last six years, has exceeded that table by full 25 per cent.

To exhibit further the comparative mortality on unhealthy lives, in another form, and for one year later, the following table is given for the 12 months ending January 1st, 1850 :—

TABLE E.

AGES.	Living, January 1, 1849.	Half of Discon- tinued deductd.	Number Living.	Half of New Policies added.	Correct Number, January 1, 1849.	Died in the Year, by Cler. &c. Office Books.	Died by Northn. Table.
10 to 19	18	<i>Nil.</i>	18	<i>Nil.</i>	18	1	<i>Nil.</i>
20 „ 29	70	1	69	2	71	1	1
30 „ 39	191	5	186	15	201	1	4
40 „ 49	260	8	252	23	275	1	6½
50 „ 59	251	6	245	15	260	6	8½
60 „ 69	108	3	105	10	115	10	5½
70 „ 79	49	2	47	1	48	5	4
80 „ 88	7	<i>Nil.</i>	7	1	8	<i>Nil.</i>	1½
	954				996	25	31

As there is at present but one other Office (*viz.* the Asylum) which can have accumulated any very considerable amount of important facts regarding the risks on diseased lives, it would seem that there do not as yet exist sufficient data for the formation of tables for the assurance of such lives.

Tables formed from the mortality on all the diseased lives, taken indiscriminately, would evidently be of very little value, as the premium required for bronchitis, or liver complaint, would not suffice for a person suffering under consumption, or disease of the heart.

If practical tables for each separate disease are ever to be formed with confidence, it can only be when experience has become much more extensive. In the mean time, the results obtained are such as to justify a perseverance in the system which has been in operation in this Society during the last six years. Combining, as it does, an experience of a *quarter of a century*, with a vigilant observation of the results of that experience as it grows from year to year, a scientific and practical classification of diseases, and a careful application of medical skill in each individual case, it affords a reasonable prospect of arriving at correct conclusions. And it has proved in its operation beneficial to the public: for many persons, whose lives would otherwise have been rejected as wholly uninsurable at most of the other Offices, have been accepted by the Clerical and Medical, on terms proportionate to the risks incurred; while the profit thus yielded to the Society has been on a very moderate scale, and somewhat *less than that derived from the healthy business*.

The system may perhaps still admit of modifications and improvements; and I am well aware of the insufficiency, in some respects, of the calculations that have been presented: but as it has been so far matured and worked with success, it may, by the continued application of the same thought and labour, be ultimately rendered complete; and thus that which, in the first instance, was little more than conjecture, will gradually become converted into something approaching to certainty.

If there be any Office which, for a period exceeding five years, has been in the habit of accepting invalid lives, and in which a careful comparison between the healthy and unhealthy portions of their business has not yet been made, it appears to me prudent, for the welfare of such Office, that a thorough investigation should take place. Numerous instances have, from time to time, come to my knowledge, where the additional premium required has been very slight; and I cannot help thinking that, on investigation, it will prove generally to have been insufficient to meet the extra risk.

If it is thought that the large number of claims by death which may have been made in the first few years, will be com-

pensated by the increased longevity of the survivors, who may be presumed to have perfectly recovered from the malady existing at the time of assurance, such expectation (if the 25 years' experience of the Clerical, Medical, and General Life Assurance Society may serve as a guide) will assuredly be disappointed.

In conclusion, I beg to state, that to any one who feels particular interest in this subject, I shall be willing to show all the details, with some additional tables and plans now in operation for the more perfect attainment of the object in view.

On the proper Allowance to be made for the Surrender of Policies of Assurance. By CHARLES JELLICOE, Esq., *Actuary to the Eagle Insurance Company.*

[Read before the Institute of Actuaries, 26th May, 1851.]

IN any Company or Society for the assurance of lives—let it be constituted in whatever manner it may—it is evident that certain rates of mortality and interest are always prevailing; and that such rates are more or less constant throughout any given period, as the causes on which they depend are more or less stationary.

Now, the annual amount required by any such Company to meet its engagements, will entirely depend upon the particular rates which happen to obtain in it; and hence it becomes a question of the utmost importance to such bodies, to determine as nearly as possible how they are situated in this respect. To show this more clearly, we will suppose that a given Society consists of 1226 persons, each assured for £1000; and that they entered it at the ages which they would do in accordance with the proportions found to exist amongst the persons assured in the London Offices. From the following table it will be seen, that on the assumption of a rate of mortality prevailing, similar to that called the Northampton, and a rate of interest not exceeding 3 per cent. per annum, the sum annually required to provide for the claims will be £43,109; whereas, on the supposition that 4 per cent. per annum is realized, and that the actual mortality corresponds with that which Mr. Griffith Davies has deduced from the experience of the "Equitable," no more than £31,417 will be needed for the purpose in question.